Subject Index to Volume 19

A

A10 cells, muscle cells, calcium currents, H699
ACE: *see* Angiotensin-converting enzyme
Acetylcholine
  oxygen-derived free radicals
    endothelium-derived relaxing factor and, H822
    vascular smooth muscle, H815
  relaxation, aortic rings, hypertension and, H711
Acidosis
  ATP depletion and, ischemic heart muscle, H503
  gradients in fiber shortening, ischemic left ventricular wall, H255
  intracellular, cardiac sarcoplasmic reticulum, H360
Acridine orange, sodium-hydrogen exchange, vascular smooth muscle, H313
Acylcarnitine transferase, inhibitor of, myocytes, H853
Adenine nucleotides, verapamil effects, heart failure (hamster), H22
Adenosine
  active hyperemia, skeletal muscle, H62
  antagonism of forskolin effects, myocytes (guinea pig), H769
  blood flow and glucose uptake, adipose tissue, H1127
  coronary flow regulation and, H1030
  endothelial cell uptake of, skeletal muscle, H482
  formation, oxygen ratio effects, heart (pig), H173
  hyperemic response of coronary blood flow and, microembolization, H509
Adenosine deaminase
  coronary autoregulation and, H558
  coronary vasodilation and, systemic hypoxia, H579
Adenosine monophosphate, cyclic
  antagonism of forskolin effects, myocytes (guinea pig), H769
  chymotrypsin-treated platelets, proteolysis, H550
  vasodilation and, vasoactive intestinal peptides, H755
Adenosine triphosphatase, oligomycin-sensitive, ischemic heart muscle, H503
Adenosine triphosphate, oligomycin and acidosis effects on, ischemic heart muscle, H503
Adenylate cyclase
  cardiac adaptations, exercise or dobutamine-induced, H725
  uremia, chronotropic responsiveness and, heart, H846
  vasodilation and, vasoactive intestinal peptides, H755
Adipose tissue, adenosine effects, blood flow and glucose uptake, H1127
Adrenal gland, blood flow: *see* Blood flow
Adriamycin, direct effects, myocardial function, H419
Afterload, mechanism of mismatch, ventricular function and, awake state, H464
Air, embolism, dural sinus pressure, H389
Aldosterone, plasma, concentration, renal actions of vasopressin, H584
Alloxan, diabetic cardiomyopathy, reversal with insulin, H108
Amiloride, sarcolemmal vesicles, superior mesenteric artery, H313
Amphiphile, anionic, augmentation of sarcolemmal calcium by, H247
Anesthesia, flow measurement in, microspheres, H137
Angiotensin, central infusion, neurohumoral contributions to, H52
Angiotensin-converting enzyme, hypoxia and hypercapnia effects, cerebral microcirculation, H806
Angiotensin II
  atrial natriuretic factor responses to, hypertension, H871
  renal vascular activity and, hypertension, H1043
  vascular, β-adrenoceptor-mediated release, H144
Anticoagulants, heparin-like molecules, mast cell deficiency, H879
Antinatriuresis, neurogenic, development of cardiac tamponade, H195
Aorta
  contractile response to ouabain and sodium, hypertension, H612
  dilation sequence, hypertension and, H662
  rings, relaxation, H711
  vasa vasorum, blood flow through, H434
Aortic endothelium
  calcium homeostasis, platelet activating factor alteration of, H1086
  equivalent pore size for, H16
Aortic stenosis, heart rate and, awake state, H159
Aortic wall, creep, acute baroreceptor resetting and, H149
Arachidonic acid
  flow-dependent dilation, methylene blue and ETYA blocking of, H974
  oxygen reactivity, arteriolar, H1102
Arginine vasopressin: *see* Vasopressin
Arrhythmias
  digitalis, sinus node, H567
  endocardial, plunge electrode system, H530
Arrhythmogenesis, atrioventricular valve, heart, H397
Arteries, elasticity, nonlinear, noninvasive measurement of, H181
Arterioles
  coronary, regulating basal tone, adenosine and, H1033
  myocardial, β-adrenergic receptor affinity for dihydroalprenolol, H490
  oxygen reactivity, prostaglandin effects, H1102
  response to oxygen, development of hypertension, H761
Artery: *see* specific artery
ATP: *see* Adenosine triphosphate
ATPase: *see* Adenosine triphosphatase; Sodium-potassium-ATPase
Atrial natriuretic factor: *see* Natriuretic factor
Atrioventricular junction, anterograde/retrograde conduction, heart, H43
Atrioventricular valve, leaflets, automaticity in, H397
Automaticity, atrioventricular valve leaflets, heart, H397
Autoradiography, cardiac β-adrenergic receptor affinity, dihydroalprenolol, H490
Autoregulation
  arteriolar response to oxygen, hypertension and, H761
  blood flow, skeletal muscle, H828
  coronary, adenosine role in, H558
  microvascular pressure, skeletal muscle venules, H838
  reactive hyperemia, following one-beat coronary occlusion, awake state, H474
Awake state
  aortic stenosis, heart rate and, H159
  augmented catecholamine uptake, heart, during hemorrhage, H76
  chronic vasopressin infusion, cardiovascular and renal responses to, H584
  development of chronic heart failure, ventricular excitability during, H1022
  iliac vasoactivity, endothelial-mediated, H892
  one-beat coronary occlusion, reactive hyperemia following, H474
  preload reserve, ventricular function and, H464

B

Basal metabolism, factors regulating, heart, H998
Behavior, spontaneous motor activity, circulatory changes during, H426
Blockade
  α-adrenergic, coronary flow, running and, H1117
  calcium entry, histamine-induced protein leakage, hypertension and, H284
  ganglion, spontaneous motor activity, H426
Blood, continuous densitometry, fluid shifts after hemorrhage, H342
Blood flow: *see also* Circulation; Microcirculation
  adenosine effects, adipose tissue, H1127
  adrenal medullary and cortical, during hemorrhage, H954
  cerebral
    monitoring, H305
    sympathetic effects during normocapnia, H498
  coronary
    hyperemic response of, adenosine role in, H509
    molecular flow marker, H1060
  cutaneous, postocclusive reactive hyperemia, H765
  local control, oxygen and, spontaneous hypertension, H761
  mesenteric, hemodilution and hemoconcentration effects, H908

Blood flow (*continued*)
metabolic control of, adenosine effects, adipose tissue, H1127
muscle, bilateral stenosis, training effects, H1050
myocardial
during tachycardia with left ventricular hypertrophy, H968
gradients in fiber shortening, ischemic left ventricular wall, H255
phase of contraction during ischemia, H778
superoxide dismutase and catalase effects, H372
transmural, adrenergic antitransmural steal, H645
neurohypophyseal, hypoxia and hypercapnia effects, H7
regional, thyrotropin-releasing hormone in hypovolemia, H1093
renal, hypertension and, H1043
umbilical, reductions, oxygen consumption during, fetal (sheep), H1037
vasa vasorum, H434
venules, skeletal muscle, H828
Blood pressure: *see also* Pressure
fastigial nucleus brain stem lesions, H231
heart rate and, endorphin effects, H796
high, sensory denervation of kidney and, H82
lowering calcium and, nucleus tractus solitarius, H226
regulation, electrical stimulation of preoptic recess, H221
spontaneous motor activity and, arterial baroreflexes in, H426
Blood volume: *see* Volume
Bradycardia
aortic stenosis and, awake state, H159
calcium lowering and, nucleus tractus solitarius, H226
Brain
blood flow: *see* Blood flow, cerebral
flow measurements, anesthesia, microspheres, H137
surgery, dural sinus pressure, H389
Brain stem, lesions, cardiovascular response and, fastigial nucleus, H231

C

Caffeine, comparison with ryanodine, ventricular myocardium, H786
Calcitonin, gene-related peptide, neurotransmitter, right atrium (guinea pig), H693
Calcium
antagonist, coronary arteries and, H718
chronotropic responsiveness, uremia and, heart, H846
depletion, basal metabolism and, heart, H998
heterogeneous responses to, sarcolemmal heart mitochondria, H741
homeostasis, platelet activating factor alteration of, vascular endothelial cells, H1086
inotropy and relaxation, myocardium, H1008
lowering, nucleus tractus solitarius, hypotension and bradycardia, H226
mobilization, vibration effects, cutaneous artery, H519
myogenic tone, ear resistance arteries, H87
paradox, myocyte ultrastructure and function, H265
release, sarcoplasmic reticulum, caffeine and ryanodine effects, H786
sarcolemmal, augmentation by anionic amphiphile, H247
uptake
changing calcium-to-hydrogen ratio effects, sarcoplasmic reticulum, H360
ventricular relaxation and, sarcoplasmic reticulum, H861
Calcium channel
blockers, platelet function and, H366
inactivating, smooth muscle cells, H699
Calcium current
forskolin and, myocytes (guinea pig), H769
smooth muscle cell line in, H699
Calcium ions, binding, adriamycin stimulation of, myocardial function and, H419
Calcium-to-hydrogen ratio, calcium uptake and, cardiac sarcoplasmic reticulum (guinea pig), H360
Caliber, diastolic, hypertension and, H662
cAMP: *see* Adenosine monophospahte, cyclic
Capillaries
muscle, cell flow path through (hamster), H899
permeability: *see* Permeability
transport, adenosine, skeletal muscle, H482
Capsaicin, neurotransmitter, right atrium (guinea pig), H693
Captopril, release, mesenteric arteries, H144
Carbohydrates
metabolism
ischemic left ventricular wall, H255
myocytes, H853
Cardiac cells: *see also* Myocytes
pacemaker, electronic interactions (chick), H453
Cardiac nerves, heart rate, rhythm, and pacemaker location, H630
Cardiac output
endotoxin effects, H240
hypovolemia, thyrotropin-releasing hormone in, H1093
volume during hemorrhage, H1136
Cardiac tamponade, development of, neurogenic antinatriuresis during, H195
Cardiomyopathy
diabetic, reversibility with insulin, H108
verapamil and (hamster), H22
Cardioversion, internal countershock, during normal rhythm, H736
Carotid body, oxygen metabolism, two-cytochrome model, H202
Carotid sinus, bilateral reflex interaction, H96
Catalase
myocardial function and, H595
superoxide dismutase and, actions in stunned myocardium, H372
Catecholamines
cell groups, fastigial nucleus brain stem lesions, H231
circulating, hepatic blood volume and, H992
hemorrhage, adrenal medullary and cortical blood flow, H954
uptake, augmented by the heart, awake state, H76
Catheterization, impedance, atrial volume during hemorrhage, H1136
Cells: *see also* specific cell
spacing, muscle capillaries (hamster), H899
Cell surface, ultrastructure, myocardium, calcium depletion and repletion effects, H265
Central nervous system
chronic angiotensin infusion, neurohumoral contributions to, H52
hemodynamics, microspheres, H137
resetting, baroreceptor reflex, H866
Cerebellum, A5 area, cardiovascular response and brain stem lesions, H231
Cerebral ventricles, hypertension, angiotensin-induced, H52
Cerebrospinal fluid, artificial, hypotension and bradycardia, nucleus tracus solitarius, H226
Chronotropic responsiveness, uremia, heart, H846
Chymotrypsin, treatment, platelets, H550
Cineradiography, left ventricular volume and dimensions, H131
Circulation: *see also* Blood flow; Microcirculation
coronary
adenosine effects, systemic hypoxia, H579
α_1-adrenergic constriction effects, H1117
regulation, adenosine in, H1033
dural sinus pressure, H389
peripheral, α_1- and α_2-adrenoceptor stimulation of, H1071
pulmonary, modification of adrenoceptor responses, H1109
Circulatory transport, terminology for, H539
Claudication, intermittent, bilateral stenosis, femoral artery, training effects, H1050
Coenzyme A, fatty acid metabolism and, heart, H351
Compliance
arterial, noninvasive measurement, H181
vascular, α_1- and α_2-adrenocptor stimulation of, H1071
Coronary artery
diltiazem actions, α-adrenoceptor subtypes and, H718
endothelium-dependent relaxations, oxygen free radicals, H815
endothelium-derived relaxing factor, oxygen free radicals and, H822
flow-induced release, endothelium-derived relaxing factor, H1145
rhythmic contractions, H524
Coronary diastolic input, impedance and capacitance, pressure and tone dependence of, H330
Coronary occlusion, one-beat, reactive hyperemia following, awake state, H474
Coronary transport function, glucose, H29
Coronary vessels, hyperemic response of, adenosine effects, H509
Countershock, internal, effects, recordings during normal rhythm, H736
Coupling, excitation-contraction, augmentation of sarcolemmal calcium, H247
Cremaster muscle, protein leakage, hypertension and, H284
Cutaneous artery, vibration effects, H519

Cyclooxygenase, oxygen reactivity, arteriolar, H1102
Cytochrome, high-affinity, oxygen metabolism, carotid body model, H202

D

Defibrillation, internal countershock, during normal rhythm, H736
Denervation, myogenic tone and, resistance artery, ear, H889
Densitometry, blood, fluid shifts after hemorrhage, H342
Deoxycorticosterone-salt, hypertension, atrial natriuretic factor responses to, H871
2-Deoxy-D-glucose, uptake, myocardial, H29
Detergents, cardiac myocyte stiffness and, H932
Dexamethasone, oxygen reactivity, arteriolar, H1102
Diabetes
  cardiac lipids and performance in, H1079
  cardiomyopathy, reversibility with insulin, H108
Diastolic interactions, pacemaker cells, heart (chick), H453
Dichloroacetate, substrate metabolism and, myocytes, H853
Digitalis, intoxication, pacemaker rhythm and, sinus node, H567
Dihydroalprenolol, ^{3}H-labeled, cardiac β-adrenergic receptor affinity for, H490
Diltiazem
  platelet function and, H366
  vibration effects, cutaneous artery, H519
Dipyridamole
  adenosine uptake and, skeletal muscle, H482
  potentiation, skeletal muscle active hyperemia, H62
Dobutamine, cardiac adaptations and, H725
Dural sinus, pressure: *see* Pressure

E

Ear
  artery
    norepinephrine-induced vasoconstriction, 5-hydroxytryptamine effects, H121
    resistance, stretch-dependent tone in, H87
ECG: *see* Electrocardiography
5,8,11,14 Eicosatetraynoic acid: *see* ETYA
Elastance, pulsus alternans, heart (pig), H606
Elasticity, arterial, noninvasive measurement of, H181
Electrical stimulation, preoptic recess, skeletal muscle vasodilation during, H221
Electrocardiography, exposure to radiofrequency radiation, H320
Electrode, plunge, endocardial arrhythmias, H530
Electrophysiology
  cardiac, heart rate effects, extracellular potassium accumulation, H982
  plunge electrode system, endocardial arrhythmias, H530
  ventricular cardiac muscle cells, H731
  ventricular excitability, development of chronic heart failure, awake state, H1022
Embryo
  electronic pacemaker interactions, heart cells (chick), H453
  ventricular function (chick), H407
Endocardium, plunge electrode system, arrhythmias, H530
Endorphins, blood pressure and heart rate, H796
Endothelial cells
  adenosine uptake, skeletal muscle, H482
  flow-dependent dilation, methylene blue and ETYA blocking of, H974
  heparin-like molecules, anticoagulantly active, H879
  vascular, calcium homeostasis, platelet activating factor effects, H1086
Endothelium
  arterial, equivalent pore size for, H16
  ear resistance arteries, myogenic tone in, H87
Endothelium-derived relaxing factor
  flow-induced release, arterial, H1145
  hyperoxia, superoxide anions and, H822
Endotoxin, lethal and nonlethal doses, myocardial performance after, H240
Energy, stores, myocardial, adriamycin effects, H419
Epinephrine, circulating, hepatic blood volume and, H992
Erythrocytes
  flux, muscle capillaries (hamster), H899
  postural changes and, H68
  velocity, skeletal muscle venules, H828, H838
ETYA, block of flow-dependent dilation and, femoral artery, H974
Excitation-contraction coupling: *see* Coupling
Exercise
  cardiac adaptations, dobutamine-induced, H725
  hyperemia: *see* Hyperemia
  running, α_1-adrenergic constriction effects, coronary flow, H1117
  training, bilateral stenosis in femoral artery and, H1050

F

Fastigial nucleus, cardiovascular response, brain stem lesions and, H231
Fatty acids
  cardiac performance and, diabetes, H1079
  metabolism
    coenzyme A and, heart, H351
    myocytes, H853
Fatty acyl, composition, cardiac hypertrophy, H1
Femoral artery
  bilateral stenosis in, exercise training effects, H1050
  endothelium-derived relaxing factor, oxygen free radicals and, H822
  flow-dependent dilation, methylene blue and ETYA blocking of, H974
  flow-induced release, endothelium-derived relaxing factor, H1145
Fetus, oxygen consumption, reduction in blood flow, umbilical (sheep), H1037
Fibrinogen, aggregation, proteolysis of platelet surface, H550
Filaments, cytoskeletal, cardiac myocyte stiffness and, H932
Filtration
  capillary, fluid shifts after hemorrhage, H342
  glomerular, chronic vasopressin infusion effects, H584
Flow
  coronary
    α_1-adrenergic constriction effects, running and, H1117
    regulation, adenosine in, H1033
    regulation, oxygen delivery and (pig), H173
    transmural reserve patterns, H276
  measurement, anesthesia, microspheres, H137
  molecular, marker, myocardial extraction, H1060
  myocardial, during tachycardia, H968
  path, muscle capillaries (hamster), H899
  plasma, renal, vasopressin effects, H584
Fluid
  cerebrospinal: *see* Cerebrospinal fluid
  shifts
    after hemorrhage, H342
    postural changes and, H68
Force-interval relations, ventricular, pacing site on, H414
Force-velocity relations, diabetic cardiomyopathy, reversal with insulin, H108
Forskolin, antagonism of effects, adenosine and, myocytes (guinea pig), H769

G

Ganglion, superior cervical, blood flow during normocapnia, H498
Glucose
  uptake
    adenosine effects, adipose tissue, H1127
    myocardial, H29
Glycosides, cardiac, postrest inotropy, H654
Gracilis muscle, ischemia, H213
Guanosine monophosphate, cyclic, flow-dependent dilation, methylene blue and ETYA blocking of, H974
Guanylate cyclase, flow-dependent dilation, methylene blue and ETYA blocking of, H974

H

Heart
  adaptations, dobutamine-induced, H725
  adenosine formation, supply-to-demand oxygen ratio effects (pig), H173
  autonomic control, differential, H43
  basal metabolism, factors regulating, H998
  calcium uptake
    changing calcium-to-hydrogen ratio effects, H360
    thyroidectomy of spontaneous hypertension and, H861
  catecholamine uptake, hemorrhage, awake state, H76
  chronotropic responsiveness, uremia and, H846
  denervation, catecholamine uptake, awake state, H76
  end-systolic pressure-volume line, slope of, H685

Heart (*continued*)
failure
development of, ventricular excitability during, awake state, H1022
verapamil effects (hamster), H22
fatty acid metabolism, elevated levels of coenzyme A and, H351
filling and nonfilling, left ventricular relaxation in, H620
flow measurements, anesthesia, microspheres, H137
function
α_1-adrenergic constriction effects, running and, H1117
hypertensive, hypothyroidism and, H600
lethal and nonlethal endotoxin, H240
glucose uptake, multiple tracer dilution estimates, H29
hypertrophy: *see* Hypertrophy
lung, myocardial responses to isoproterenol, naloxone effects, H749
performance
improvement in heart failure, verapamil and (hamster), H22
lipid content and, diabetes, fatty acid effects, H1079
periphery and, optimum power output, H961
pressure-volume diagram, H167
regional differences, myocyte hypertrophy and three-dimensional deformation, H378
sarcolemmal mitochondria, heterogeneous responses to calcium, H741
Heart atria
isomyosins, thyroxine effects, H333
pacemaker complex, cardiac nerve effects, H630
peptide nerves, calcitonin gene-related (guinea pig), H693
right, volume during hemorrhage, H1136
Heart rate
aortic stenosis and, awake state, H159
bilateral carotid reflex interaction, H96
blood pressure and, endorphin effects, H796
cardiac nerve effects, H630
extracellular potassium accumulation and, myocardial ischemia, H982
fastigial nucleus brain stem lesions, H231
lowering calcium and, nucleus tractus solitarius, H226
radio-frequency exposure, ECG during, H320
spontaneous motor activity and, arterial baroreflexes in, H426
Heart ventricles
anteroventral third, skeletal muscle vasodilation during electrical stimulation and, H221
augmentation of sarcolemmal calcium, anionic amphiphile, H247
excitability, chronic heart failure and, awake state, H1022
function
embryo (chick), H407
preload reserve and, awake state, H464
isomyosins, thyroxine effects, H333
postrest inotropy, H654
relaxation, calcium uptake and, sarcoplasmic reticulum, H861
ryanodine, caffeine comparison and, H786
viscoelastic properties, measurement of, H672
Heart ventricles, left
eccentricity of, myocyte hypertrophy, H378
end-systolic pressure-volume line, H685
force-interval relations, pacing site on, H414
hypertrophy: *see* Hypertrophy
ischemic wall, gradients in fiber shortening, H255
optimum power output, H961
pressure-volume relations, peak isovolumic, H167
regional work, wall tension-area loop, H151
relaxation, filling and nonfilling heart, H620
volume, biplant ventriculography, H131
Hematocrit
blood densitometry, fluid shifts after hemorrhage, H342
microvascular, during hemodilution and hemoconcentration, H908
Hemoconcentration, microvascular hemodynamics during, H908
Hemodilution, microvascular hemodynamics during, H908
Hemorrhage
atrial volume during, H1136
blood flow during, adrenal medullary and cortical, H954
catecholamine uptake during, heart, awake state, H76
hypotension after, reflex compensatory systems, interactions among, H944
Heparin-like molecules, anticoagulantly active, mast cell deficiency, H879
Histamine
protein leakage, hypertension, verapamil effects, H284
relaxation, aortic rings, hypertension and, H711
Hormones: *see* specific hormone
Hydrogen peroxide
myocardial function and, H595
vascular smooth muscle and, H815
Hydroxyl, vascular smooth muscle and, H815
5-Hydroxytryptamine, relaxation time, norepinephrine-induced vasoconstriction, H121
Hypercapnia
ACE activity and, cerebral microcirculation, H806
neurohypophyseal blood flow and, H7
Hyperemia
exercise
diameter and blood flow and, skeletal muscle, H828
dipyridamole potentiation of, skeletal muscle, H62
hypoxic, adenosine deaminase effects, H579
postocclusive reactive, cutaneous blood flow during, H765
reactive
one-beat coronary occlusion and, awake state, H474
transmural flow reserve, H276
Hyperoxia, endothelium-derived relaxing factor and, H822
Hypertension
angiotensin-induced, neurohumoral contributions to, H52
aortic rings, relaxation in, H711
atrial natriuretic factor responses to, model, H871
chronic vasopressin infusion, renal actions of, H584
development of, aortic caliber changes, H662
histamine-induced protein leakage, verapamil effects, H284
low-sodium, renal nerves in, H189
renovascular, renal afferent nerve, H82
sodium and ouabain effects, aorta, H612
spontaneous
antihypertensive effects of thyroidectomy in, H600
arteriolar response to oxygen, H761
thyroidectomy of, H861
vasopressin and renin response, H443
vascular reactivity during, renal, H1043
Hypertrophy
cardiac
ouabain effects, H923
phospholipid metabolism in, H1
hypertension, thyroidectomy effects, calcium uptake, sarcoplasmic reticulum, H861
left ventricular, tachycardia with, myocardial blood flow during, H968
vascular, renal, H1043
Hypoperfusion, coronary, adrenergic antitransmural steal, H645
Hypotension
blood flow during, adrenal medullary and cortical, H954
calcium lowering and, nucleus tractus solitarius, H226
hypovolemic, continuous blood densitometry, H342
posthemorrhage, reflex compensatory systems, interactions among, H944
Hypothyroidism
hypertension, calcium uptake and, sarcoplasmic reticulum, H861
spontaneous hypertension and, heart performance, H600
Hypovolemia
plasma volume loss, vasopressin and renin response to, H443
thyrotropin-releasing hormone in, H1093
Hypoxemia, arterial, neurohypophyseal blood flow and, H7
Hypoxia
ACE activity and, cerebral microcirculation, H806
neurohypophyseal blood flow and, H7
papillary muscle, improvement in relaxation by nifedipine, H208
systemic, coronary vasodilation during, adenosine effects, H579

I

Iliac artery, vasoactivity, endothelial-mediated, awake state, H892
Immunofluorescence, thyroid hormone, atrial and ventricular isomyosins and, H333
Indicator-dilution technique
ACE activity, hypoxia and hypercapnia effects, cerebral microcirculation, H806
extraction of tritium oxide, pulmonary endothelial, H1017
multiple, adenosine uptake, skeletal muscle, H482
Indomethacin, oxygen reactivity, arteriolar, H1102

Infant: *see* Neonate
Inosine, oxygen delivery effects, heart (pig), H173
Inotropy
  postrest, ventricular, H654
  relaxation relations, myocardium, H1008
Insulin
  diabetic cardiomyopathy and, H108
  therapy, cardiac lipids and performance, diabetes, H1079
Interstitium, adenosine role, coronary autoregulation, H558
Iododesmethylimipramine, extraction and retention, myocardial, H1060
Ionic currents, pacemaker cells, sinoatrial node, H325
Ischemia
  heart muscle, ATP depletion, oligomycin and acidosis effects, H503
  metabolic response to, skeletal muscle, H213
  myocardial
    coronary blood flow, microembolization, H509
    extracellular potassium accumulation, H982
    phase of contraction during, H778
    prolonged, pyruvate effects, H114
    reactive hyperemia following, awake state, H474
  subendocardial, transmural flow reserve, H276
Isomyosins, atrial and ventricular, thyroxine effects, H333
Isoproterenol
  myocardial responses to, naloxone effects, heart-lung, H749
  oxygen delivery effects, heart (pig), H173
  ventricular cardiac muscle cells, H731
Isovolumic phase, myocardial ischemia, H778

K

Kainic acid, fastigial nucleus brain stem lesions, H231
Kidney
  denervation, low-sodium hypertension and, H189
  flow measurements, anesthesia, microspheres, H137
  function, vagally mediated regulation, awake state (monkey), H546
  responses, chronic vasopressin infusion, H584
  sensory denervation, renovascular hypertension and, H82
  vascular reactivity, hypertension, H1043

L

Laplace's law, left ventricular regional work, H151
Lipids
  cardiac, performance and, diabetes, H1079
  metabolism, myocytes, H853
  peroxidation, adriamycin stimulation of, myocardial function and, H419
Lipolysis
  blood flow and glucose uptake, adenosine effects, H1127
  endogenous, metabolism, myocytes, H853
Liver, blood volume, catecholamine effects, H992
Lung
  heart and, myocardial responses to isoproterenol, naloxone effects, H749
  temperature, pulmonary extraction of tracer water and, H1017
Lymph
  flow, Starling's hypothesis, H706
  postural changes and, H68

M

Macromolecules, capillary permeability effects, Starling's hypothesis, H706
Mast cells, deficiency, anticoagulantly active heparin-like molecules, H879
Meclofenamate, oxygen reactivity, arteriolar, H1102
Mesenteric artery
  angiotensin II release, β-adrenoceptor-mediated, H144
  superior, sodium-hydrogen exchange in, H313
  VIP vasodilation, cAMP and, H755
Methylene blue, block of flow-dependent dilation and, femoral artery, H974
Microcirculation: *see also* Blood flow; Circulation
  cerebral, ACE activity, hypoxia and hypercapnia effects, H806
  cheek pouch (hamster), H291
  cutaneous, postocclusive reactive hyperemia, H765
  oxygen reactivity, prostaglandins and, H1102
  postural changes and, H68
  response to oxygen, spontaneous hypertension, H761
Microelectrodes, oxygen, carotid body, H202
Microembolization, coronary blood flow, hyperemic responses, adenosine effects, H509
Micropressure, cheek pouch (hamster), H291
Microscopy, fluorescent, protein leakage, hypertension and, H284
Microspheres
  blood flow, vasa vasorum, H434
  flow measurements in anesthesia and, H137
  left ventricular hypertrophy, tachycardia with, myocardial flow during, H968
  molecular flow marker, H1060
  radiolabeled
    adrenal medullary and cortical blood flow, hemorrhage and, H954
    cerebral blood flow, H305
    transmural flow reserve, H276
  sympathetic effects, cerebral blood flow, H498
Microvascular hindrance, hemodilution, hemoconcentration and, H908
Microvascular network, cheek pouch (hamster), H291
Mitral orifice, occlusion, left ventricular relaxation and, H620
Models
  hypertension, atrial natriuretic factor responses to, H871
  two-cytochrome, oxygen metabolism, carotid body, H202
Motor activity, spontaneous, circulatory changes during, arterial baroreflexes in, H426
Muscle, heart
  basal metabolism, factors regulating, H998
  diabetic cardiomyopathy, reversal with insulin, H108
  fiber orientation, myocyte hypertrophy, H378
  hypoxic isometric, improvement in relaxation by nifedipine, H208
  ischemic, ATP depletion, oligomycin and acidosis effects, H503
  relaxation, inotropy relations and, H1008
  ventricular cells, electrophysiology of, H731
Muscle, skeletal
  active hyperemia, dipyridamole potentiation of, H62
  arterial pressure reduction, microvascular pressure during, H838
  endothelial cells, adenosine uptake by, H482
  metabolic response to ischemia, H213
  vasodilation, electrical stimulation of preoptic recess, H221
  venules, diameter and blood flow, H828
Muscle, smooth
  cell line, calcium currents in, H699
  vascular
    contractile response to ouabain and sodium, hypertension and, H612
    oxygen free radicals and, H815
    response to oxygen, spontaneous hypertension, H761
    sodium-hydrogen exchange in, H313
Muscle cells, vascular smooth, VIP vasodilation and cAMP, H755
Muscle fibers, type, bilateral stenosis, training effects, H1050
Myocardium
  contractility, aortic stenosis effects, awake state, H159
  flow: *see* Flow
  function
    α_1-adrenergic constriction effects, running and, H1117
    adriamycin direct effects, H419
    oxygen free radicals and, H595
  glucose uptake, multiple tracer dilution estimates, H29
  ischemic, pyruvate effects, H114
  metabolism, diabetes, H1079
  molecular flow marker in, H1060
  myocyte, morphology, embryo (chick), H407
  stunned, superoxide dismutase and catalase actions in, H372
  ventricular, ryanodine and caffeine comparison, H786
  viscoelasticity, measurement of, H672
Myocytes: *see also* Cardiac cells
  carbohydrate and fatty acid metabolism, adult, H853
  dihydroalprenolol, β-adrenergic receptor affinity for, H490
  forskolin effects, antagonism by adenosine (guinea pig), H769
  hypertrophy, regional differences, heart, H378
  stiffness, detergent and high salt solutions, H932
  ultrastructure and function, calcium depletion and repletion effects, H265
Myogenic tone
  ear resistance arteries, H87
  stretch-dependent, denervation effects, resistance artery, ear, H889
Myosin, heavy chains, cardiac, regulation of, H333

N

Naloxone, myocardial responses to isoproterenol and, heart-lung, H749
Natriuretic factor, atrial, hemodynamic responses to, hypertension, models, H871
Nerves: *see also* specific nerve
  discharge, oxygen metabolism, carotid body, model, H202
Neonate, inotropy, relaxation and, myocardium, H1008
Neurons, nucleus tracus solitarius, calcium role in, H226
Neurotransmitters
  autonomic, atrioventricular valve leaflets, H397
  calcitonin gene-related peptide, right atrium (guinea pig), H693
  noradrenergic, mesenteric arteries, H144
Nifedipine, improvement in relaxation, hypoxic isometric heart muscle, H208
Norepinephrine
  action, coronary arteries, H718
  circulating, hepatic blood volume and, H992
  content, renal, H189
  dose-response relations, diabetic cardiomyopathy, H108
  optimum power output, left ventricle, H961
  oxygen delivery and, heart (pig), H173
  vasoconstriction, relaxation time of, 5-hydroxytryptamine effects, H121
Normocapnia, cerebral blood flow during, sympathetic effects on, H498
Nucleus tractus solitarius, calcium in, hypotension and bradycardia, H226

O

Oligomycin, ATP depletion and, ischemic heart muscle, H503
Opiates, myocardial responses to isoproterenol and, heart-lung, H749
Opioid agonists, heart rate and blood pressure with, H796
Opioids, cardiovascular response to, H796
Orthostasis, fluid and protein shifts, H68
Oscillation, forced, measuring viscoelastic properties, H672
Ouabain
  aortic contractile response and, hypertension, H612
  oxygen delivery and, heart (pig), H173
  pacemaker rhythm and, sinus node, H567
  prolonged response to, hypertrophied heart, H923
Oxidant, exogenously generated species, myocardial function and, H595
Oxidation, fatty acid, regulation of, coenzyme A and, heart, H351
Oxygen
  arteriolar response to, spontaneous hypertension, H761
  consumption
    basal, heart, H998
    myocardial, adenosine effects, H579
    reductions in blood flow, umbilical, fetal (sheep), H1037
  free radicals
    endothelium-derived relaxing factor and, H822
    ischemia, skeletal muscle response to, H213
    myocardial function and, H595
    stunned myocardium and, H372
  vascular smooth muscle and, H815
  metabolism, carotid body, model, H202
  pressure, blood flow through vasa vasorum, H434
  reactivity, arteriolar, prostaglandin effects, H1102
  supply-to-demand ratio, adenosine formation and, heart (pig), H173

P

Pacemaker
  electronic interactions, heart cells (chick), H453
  location, cardiac nerve effects, H630
  rhythm, digitalis intoxication effects, sinus node, H567
Pacemaker cells, cultured, sinoatrial node, H325
Papillary muscle: *see* Muscle, heart
Peptides, vasoactive intestinal, cAMP and, H755
Permeability
  capillary
    macromolecules and, Starling's hypothesis, H706
    terminology for mass transport, H539
  membrane, alterations, calcium effects, heart mitochondria, H741
  pore size, arterial endothelium, H16
Pharmacokinetics, terminology for mass transport, H539
Phenoxybenzamine, stretch-dependent tone, ear resistance arteries, H87
Phosphagens, intramuscular, response to ischemia, H213
Phosphates
  content, ischemic left ventricular wall, H255
  high-energy, alleviation of, heart failure and (hamster), H22
  inorganic, ischemic left ventricular wall, H255
Phosphatidylcholine, cardiac hypertrophy and, H1
Phosphatidylethanolamine, cardiac hypertrophy and, H1
Phospholipids, metabolism, cardiac hypertrophy, H1
Pituitary gland, responses, hypoxia and hypercapnia, H7
Plasma
  flow: *see* Flow
  volume: *see* Volume
Platelet activating factor, calcium homeostasis and, vascular endothelial cells, H1086
Platelets
  function, verapamil and diltiazem effects, H366
  surface, proteolysis of, H550
Pore, radius, arterial endothelium, H16
Posture, changes, fluid and protein shifts after, H68
Potassium
  excess, basal metabolism and, heart, H998
  excretion, renal response to vasopressin infusion, H584
  extracellular accumulation, myocardial ischemia, H982
Potassium-free solution, aortic contractile response and, hypertension, H612
Potentials
  action
    anti-adrenergic effects of adenosine, myocytes (guinea pig), H769
    changes during myocardial ischemia, H982
    ventricular cardiac muscle cells, H731
  membrane, rhythmic coronary arterial contractions, H524
Potentiation, postextracystolic, ventricular force-interval relations, H414
Prazosin, vibration effects, cutaneous artery, H519
Preload, reserve, ventricular function and, awake state, H464
Pressure: *see also* Blood pressure
  arterial
    baroreceptor reflex control of, H866
    bilateral carotid reflex interaction, H96
    responses to vasopressin infusion, H584
  capillary, arterial pressure reduction and, skeletal muscle, H838
  colloid osmotic, macromolecules and, H706
  dependence, coronary diastolic input impedance and capacitance, H330
  dural sinus, brain surgery, H389
  end-systolic, assessment of, heart, H685
  hydrostatic, vascular anatomy and, cheek pouch (hamster), H291
  microvascular, skeletal muscle venules, arterial pressure reduction and, H838
  peak systolic, endotoxin effects, H240
Pressure-diameter relations, end-systolic, during pulsus alternans, heart (pig), H606
Pressure-length relations, left ventricular function, H151
Pressure-volume relations
  end-systolic
    trajectory, heart, H685
    ventricular function, H464
  left ventricular function, H151
  peak isovolumic, left ventricle, H167
Prostaglandins, oxygen reactivity and, arteriolar, H1102
Protein
  leakage, histamine-induced, hypertension, verapamil effects, H284
  lymph, transport, Starling's hypothesis, H706
  plasma, fluid shifts after hemorrhage, H342
  shifts, postural changes and, H68
Proteolysis, platelet surface, H550
Pulmonary artery, blood flow, vasa vasorum, H434
Pulmonary vascular bed, adrenoceptor responses, H1109
Pulsus alternans, heart, end-systolic pressure-diameter relations during (pig), H606
Pump
  function, ventricular, H961
  sodium
    electrogenic, hypertension and, aorta, H612
    rhythmic coronary arterial contractions, H524
Pyruvate, ischemic myocardium and, H114

R

Radiation, radio-frequency, exposure to, electrocardiography during, H320
Rauwolscine, vibration effects, cutaneous artery, H519

Receptors
adrenergic, verapamil and diltiazem effects, platelet function, H366
β-adrenergic
cardiac, affinity for dihydroalprenolol, H490
dobutamine-induced cardiac adaptations, H725
adrenoceptors
responses, modification of, pulmonary circulation, H1109
stimulation, peripheral circulation, H1071
α-adrenoceptors, vibration effects, cutaneous artery, H519
α-adrenoceptor subtypes, diltiazem actions and, coronary arteries, H718
baroceptors
acute resetting, aortic wall creep and, H149
aortic stenosis effects, awake state, H159
resetting, aortic dilation sequence, hypertension, H662
chemoreceptors, arterial, hypoxia and, H7
Red blood cells: *see* Erythrocytes
Reflexes
baroreflexes
arterial, circulatory changes during spontaneous motor activity, H426
carotid sinus, interaction of right and left, H96
resetting, H866
cardiopulmonary
development of cardiac tamponade, H195
renal function and, awake state (monkey), H546
cardiovascular, aortic stenosis and, awake state, H159
compensatory systems, interactions, posthemorrhage hypotension, H944
Renal nerve
afferent, renovascular hypertension, H82
low-sodium hypertension, H189
Renin
atrial natriuretic factor responses to, hypertension, H871
plasma activity
low-sodium hypertension, H189
renal responses to vasopressin infusion, H584
response, vasopressin and, hypertension, H443
Renin-angiotensin system
plasma volume loss, spontaneous hypertension, H443
renal nerves, low-sodium hypertension, H189
vascular, release of angiotensin II, H144
Reoxygenation, nifedipine, papillary muscle, H208
Resistance
coronary vascular
adenosine in, H558
endotoxin effects, H240
reactive hyperemia, awake state, H474
electrical, equivalent pore size for arterial endothelium, H16
peripheral, thyrotropin-releasing hormone in hypovolemia, H1093
venous, venules, skeletal muscle, H828, H838
Resistance artery, myogenic tone in, denervation effects, ear, H889
Retroglenoid outflow, cerebral blood flow, H305
Rhythms, normal, internal countershock during, H736
Running: *see* Exercise
Ryanodine
comparison with caffeine, ventricular myocardium, H786
sodium-calcium exchange, postrest inotropy and, H654

S

Salt, solutions, cardiac myocyte stiffness and, H932
Saphenous artery, vibration effects, H519
Sarcolemma
calcium, augmentation of, anionic amphiphile, H247
calcium ion binding, adriamycin stimulation of, H419
heterogeneous responses, calcium, H741
hypertrophy, prolonged response to ouabain, H923
membrane, chronotropic responsiveness, uremia and, H846
Sarcoplasmic reticulum
calcium
content, sodium-calcium exchange and, H654
uptake in, thyroidectomy effects, H861
cardiac, effects of changing calcium-to-hydrogen ratio on calcium uptake, H360
inotropy and relaxation, myocardium, H1008
ryanodine, caffeine comparison, H786
Sinoatrial node, pacemaker cells from, H325
Sinus node
automaticity, differential sympathetic-parasympathetic interactions, H43
cardiac nerve effects, heart rate, rhythm, and pacemaker location, H630
pacemaker rhythm in, digitalis intoxication effects, H567
Skin, blood flow: *see* Blood flow
Sleep state, endorphin effects, heart rate and blood pressure, H796
Sodium
aortic contractile response and, hypertension, H612
excretion, renal response to vasopressin infusion, H584
restriction, renal nerves in, H189
Sodium-calcium exchange, postrest inotropy and, H654
Sodium-hydrogen exchange, sarcolemmal vesicles, superior mesenteric artery, H313
Sodium-potassium-ATPase, ouabain effects, hypertrophied heart, H923
Sonomicrometry, superoxide dismutase and catalase effects, stunned myocardium, H372
Starling's hypothesis, capillary permeability, macromolecules and, H706
Stenosis, bilateral, femoral artery, training effects, H1050
Substrates, metabolism, cardiac myocytes, H853
Superoxide anions, endothelium-derived relaxing factor and, H822
Superoxide dismutase
catalase and, actions in stunned myocardium, H372
endothelium-derived relaxing factor and, H822
flow, endothelium-derived relaxing factor and, H1145
myocardial function and, H595
vascular smooth muscle and, H815
Sympathetic nerve
renal
baroreceptor reflex resetting, H866
development of cardiac tamponade, H195
Sympathetic nervous system
blood flow and, cerebral, during normocapnia, H498
chronic angiotensin infusion, neurohumoral contributions to, H52
skeletal muscle vasodilation, electrical stimulation of preoptic recess, H221
Sympathomimetic amines, vascular tone and, pulmonary circulation, H1109

T

Tachycardia, blood flow during, myocardial, H968
Temperature, body
radio-frequency exposure and, ECG during, H320
tritium oxide, pulmonary extraction of, H1017
Terminology, mass transport and exchange, H539
Tetrodotoxin, ventricular cardiac muscle cells, H731
Thermodynamics, irreversible, terminology for mass transport, H539
Thyroidectomy
antihypertensive effects, spontaneous hypertension, H600
spontaneous hypertension and, H861
Thyroid gland, status, atrial and ventricular isomyosins, H333
Thyroid hormone, isomyosins and, atrial and ventricular, H333
Thyrotropin-releasing hormone, hypovolemia, H1093
Thyroxine, differential effects, atrial and ventricular isomyosins, H333
Training: *see* Exercise
Transmural nerve, stimulation, calcitonin gene-related peptide, right atrium (guinea pig), H693
Triacylglycerol, synthesis, coenzyme A and, heart, H351
Tritium oxide, pulmonary endothelial extraction of, lung temperature and, H1017

U

Ultrafiltration, macromolecules and, H706
Ultrasonic echo, tracking, arterial elasticity, H181
Umbilical vein, blood flow, reduction, oxygen consumption and, fetal (sheep), H1037
Uremia, β-adrenergic responsiveness in, H846

V

Vagus nerve, regulation of renal function, awake state (monkey), H546
Vasa vasorum, arteries and veins, blood flow, H434
Vascular anatomy, hydrostatic pressure profile and, cheek pouch (hamster), H291

Vascular tone
elevated, adrenoceptor responses, pulmonary circulation, H1109
noninvasive measurement, H181
Vasoactive intestinal peptides: *see* Peptides
Vasoactivity, iliac, endothelial-mediated, awake state, H892
Vasoconstriction
adrenergic, coronary hypoperfusion during, H645
iliac, endothelial-mediated, awake state, H892
norepinephrine-induced, relaxation time of, 5-hydroxytryptamine effects, H121
Vasodilation
active hyperemia, skeletal muscle, H62
coronary, hypoxia during, adenosine effects, H579
endothelium-derived relaxing factor, flow-induced release of, H1145
iliac, endothelial-mediated, awake state, H892
maximal, transmural flow reserve, H276
methylene blue and ETYA, femoral artery, H974
skeletal muscle, during electrical stimulation of preoptic recess, H221
Vasomotion, postocclusive reactive hyperemia, H765
Vasopressin
arginine, hypoxia and hypercapnia, pituitary responses to, H7
chronic infusion, cardiovascular and renal responses, H584
renin response and, hypertension, H443
Velocimetry, laser Doppler, postocclusive reactive hyperemia, H765
Vena cava, blood flow, luminal oxygen pressure and, H434
Venoconstriction, catecholamines, hepatic blood volume and, H992
Venous outflow method, monitoring cerebral blood flow, H305
Ventilation, bilateral carotid reflex interaction, H96
Ventricles: *see* Cerebral ventricles; Heart ventricles
Ventriculography, biplane, H131
Verapamil
heart failure and (hamster), H22
histamine-induced protein leakage and, hypertension, H284
platelet function and, H366
ventricular cardiac muscle cells, H731
VIP: *see* Peptides, vasoactive intestinal
Volume
atrial, during hemorrhage, H1136
blood
catecholamine effects, liver, H992
postural changes and, H68
vagally mediated regulation, awake state (monkey), H546
loading, pulsus alternans, heart (pig), H606
plasma, vasopressin and renin, spontaneous hypertension and, H443

W

Water
excretion, renal response to vasopressin infusion, H584
tracer, pulmonary extraction of, lung temperature and, H1017
Wiggers lecture, H705

X

Xanthine oxidase, vascular smooth muscle and, H815

Author Index to Volume 19

Abbott, W. M., H181
Aboukarsh, N., H82
Addonizio, V. P., Jr., H366
Agarwal, J. B., H778
Akaishi, M., H778
Alexander, R. W., H755
Allen, J. C., H313
Amano, J., H76
Amundsen, S., H434
Anderson, D. F., H1037
Andrezik, J. A., H231
Antonetti, A., H1008
Appleton, C. P., H1071
Armstrong, M. L., H434
Arts, T., H255
Atlas, S. A., H871
Azuma, T., H705

Bache, R. J., H474
Banerjee, S. P., H725
Bardenheuer, H., H173
Bartram, F. R., H736
Bassingthwaighte, J. B., H29, H482, H539, H1060
Bealer, S. L., H221
Belardinelli, L., H769
Benevolensky, D. S., H360
Bergmann, S. R., H1079
Bers, D. M., H654
Bevan, J. A., H87
Bevan, R. D., H889
Bing, O. H. L., H595
Black, S., H861
Blair, M. L., H443
Blaustein, A. S., H595
Bockman, E. L., H1127
Boineau, J. P., H630
Brady, A. J., H265, H932
Braggio, J. T., H231
Brautigan, D. L., H1030
Breslow, M. J., H954
Briggs, G. M., H731
Brock, T. A., H1086
Brooks, W. W., H595
Brown, A. J., H584
Brown, A. M., H149
Brown, P. R., H1030
Brown, T., H131
Brumfield, B. A., H240
Bruner, C. A., H52
Brunner, M. J., H96
Buerk, D. G., H202
Buja, L. M., H490
Burchard, K. W., H1135
Burczynski, F., H992
Burkhoff, D., H414
Busija, D. W., H498

Caffrey, J. L., H749
Calianos, T. A., H490
Camargo, M. J. F., H871
Canty, J. M., Jr., H330
Carlson, D. E., H1135
Carroll, R. G., H584
Carter, J. E., H208
Charlemagne, D., H923
Chemla, D., H1008
Chen, Y.-H., H443
Chilian, W. M., H114
Chinard, F. P., H539, H1017
Clark, E. B., H407
Claycomb, W. C., H731
Clergue, M., H1008
Colavita, P. G., H736
Coleridge, H. M., H149
Coleridge, J. C. G., H149
Colman, R. W., H366
Cornish, K. G., H159
Coumans, W. A., H255
Crone, C., H539
Cua, W. O., H1017

Daugherty, A., H1079
Davidson, W. R., Jr., H725
Davis, J. O., H189
Davis, M. J., H291
Dawson, C. A., H806
DeHaan, R. L., H453
Dettman, R., H992
Dormer, K. J., H231
Downey, H. F., H579
Duling, B. R., H705
Dummett, J. L., H407

Eastham, C. L., H114
Ebina, K., H389
Ehrlich, Y. H., H550
Elzinga, G., H961
Erickson, J. L., H503

Faber, J. J., H1037
Fanburg, B. L., H595
Farber, N. E., H372
Farnsworth, S., H265
Farnsworth, S. P., H932
Feigl, E. O., H645
Fein, F. S., H108
Ferrer, P. N., H291
Feuerstein, G., H1093
Fields, L. E., H1079
Fink, G. D., H52
Firrell, J. C., H908
Fisher, C. A., H366
Fleming, J. T., H284
Foreman, R. D., H231
Foster, K. A., H1
Frank, J. S., H265
Frater, R. W. M., H620
Freeman, R. H., H189
Friedman, M. E., H699
Frist, W. H., H208
Furukawa, K., H378

Gabbay, S., H620
Galli, S. J., H879
Gann, D. S., H1135
Ganz, P., H755
Garvin, L., H131
Gatley, R., H213
Gaugl, J. F., H749
Gewirtz, H., H1030
Gibbs, C. L., H998
Gimbrone, M. A., Jr., H755, H1086
Glorioso, N., H871
Goldman, S., H1071
Gordon, C. J., H320
Gore, R. W., H291
Goresky, C. A., H539
Gorman, M. W., H482
Goto, K., H693
Goto, Y., H151, H167
Grattan, M. T., H276, H558
Greene, A. S., H96
Greenfield, J. C., Jr., H968
Greenway, C. V., H992
Gross, G. J., H372
Gutterman, D. D., H114
Gwirtz, P. A., H1117

Haddad, G. G., H796
Hageman, G. R., H43
Hanley, D. F., H7
Hanley, F. L., H276, H558
Hansen, C. A., H351
Hardage, M., H736
Harding, R., H213
Hardman, H. F., H372
Hardwick, D. H., H550
Harris, K., H213
Hashiguchi, R., H672
Hasson, J. E., H181
Hatt, P. Y., H1008
Heckman, J. L., H131
Heistad, D. D., H434
Helfant, R. H., H778
Hess, D. S., H474
Hess, M. E., H761
Higashi, H., H226
Higuchi, S., H226
Hill, D. A., H630
Hinghofer-Szalkay, H., H68, H342
Hintze, T. H., H76
Hiramori, K., H151
Hoffman, J. I. E., H276, H558
Hoppel, C. L., H741
Hori, M., H509, H620
Hosomi, H., H944
House, S. D., H828, H838
Hu, N., H407
Hull, S. S., Jr., H974
Hunneman, D. H., H853
Hutchinson, H., H1
Hwa, J. J., H87
Hyman, A. L., H1109

Ibata, Y., H378
Ideker, R. E., H530, H736
Igarashi, Y., H151, H167, H685
Ijichi, H., H378
Imaizumi, T., H226
Inagami, T., H144
Inou, T., H114
Inoue, M., H509
Irion, G. L., H137
Isenberg, G., H769
Isoyama, S., H672
Ito, H., H509
Ito, N., H226
Iwabuchi, T., H389
Iwai, K., H509

Jackman, R. W., H879
Jackson, E. K., H144
Jackson, W. F., H1102
Jakobs, K. H., H846
Jalife, J., H397, H567
Jasmin, G., H22
Jeng, H. J., H796
Johnson, P. C., H828, H838
Jones, C. E., H579, H1117
Josephson, M. E., H366
Joshua, I. G., H284
Joyce, E. H., H889

Kaczorowski, G. J., H699
Kadowitz, P. J., H1109
Kahn, A. M., H313
Kaiser, L., H974
Kamada, T., H509
Katsuda, S., H944
Katsume, H., H378
Katz, G. M., H699
Katz, S., H861
Keef, K. D., H524
Kent, R. L., H1
Kerber, R. E., H1022
Kimura, S., H693
Kitabatake, A., H509
Kitakaze, M., H509
Klabunde, R. E., H62
Klocke, F. J., H330
Knight, D. R., H546
Ko, K. R., H304
Koehler, R. C., H954
Koiwa, Y., H672
Koretsune, Y., H509
Kornecki, E., H550
Kort, A. A., H786
Kotsanas, G., H998
Koyama, S., H944
Krams, R., H330
Kreiger, E. M., H662
Krohn, K. A., H1060
Kuikka, J., H29
Kunze, D. L., H866
Kuribayashi, T., H378
Kuzon, B., H213

Lai, T. L., H796
Lakatta, E. G., H786
Landis, S. C., H755
Lang, C. H., H240
Langer, G. A., H247
Laragh, J. H., H871
Lassen, N. A., H539
Lawton, M. T., H195
Lecarpentier, Y., H1008
Lee, J.-D., H464
Lee, R. W., H1071
Lelievre, L. G., H923
Lenox, R. H., H550
Leopold, J., H755
Leusen, I., H711
Levin, M., H29
Levitsky, D. O., H360
Liang, C.-S., H725
Liedtke, A. J., H606
Lindblad, L. E., H519
Linehan, J. H., H806
Link, J. M., H1060

Lipowsky, H. H., H908
Lister, G., H806
L'Italien, G. L., H181
Little, S. E., H1060
Lohmeier, T. E., H584
Lombard, J. H., H761
Lopaschuk, G. D., H351
Lorente, P., H923
Lorenz, R. R., H519
Ludbrook, J., H426
Lund, D. D., H1022
Lynch, P. R., H131

Maack, T., H871
Maggi, C. A., H121
Maixent, J. M., H923
Major, T. C., H612
Manders, W. T., H546
Mangiarua, E. I., H889
Mann, J. F. E., H846
Manzini, S., H121
Marcum, J. A., H879
Marcus, M. L., H114
Marotte, F., H333
Martin, G. V., H1071
Martin, J. L., H1008
Martin, S. E., H1127
Mass, H. J., H1117
Mates, R. E., H330
Mathien, G. M., H1050
Matsuguchi, H., H226
McDonough, K. H., H240
McKee, N., H213
McKenney, J. B., H879
McNeill, J. H., H600, H861
Megerman, J., H181
Meier, C. F., Jr., H731
Meli, A., H121
Mennen, A., H954
Mercier, R. J., H778
Merrill, G. F., H579
Meydrech, E. F., H584
Michelini, L. C., H662
Mickle, D. A. G., H213
Miller, C. B., H630
Miller, F. N., H284
Miller, W. P., H606
Miller-Green, B., H108
Mirro, M. J., H1022
Moreland, R. S., H612
Morii, S., H304
Morita, H., H944
Moser, M., H68
Most, A. S., H1030
Mottino, G., H265
Mouas, C., H923
Müller, F. B., H871
Munch, P. A., H149
Muntz, K. H., H490

Nair, P. K., H202
Nakamaru, M., H144
Nakamura, M., H226
Nathan, H. J., H645
Nathan, R. D., H325
Neely, B. H., H43
Neely, J. R., H351
Nellis, S. H., H606
Newell, J. B., H208
Ngai, A. C., H304
Niebauer, M. J., H159
Nishida, Y., H944

O'Donnell, M. P., H16
Ohhashi, T., H705
Ohyama, T., H672
Olajos, M., H1071
Olson, C., H407
Olsson, R. A., H482, H1030
Oparil, S., H82
O'Rourke, B., H1
Osborn, J. L., H195
Overn, S. P., H1117

Palacios, I., H208
Palmer, J. W., H741
Pandian, N. G., H1022
Parekh, N., H284
Parks, C. M., H1037
Parmley, W. W., H22
Patritti, J., H464
Person, R. J., H231
Pierce, G. N., H419
Piper, H. M., H853
Pitt, B. R., H806
Poore, E. R., H149
Potocnik, S. J., H426
Powell, E., H1093
Powell, W. J., Jr., H208
Prinzen, F. W., H255
Probst, I., H853
Proctor, K. G., H221

Rappaport, L., H333
Reeves, J. P., H654
Reibel, D. K., H1
Rembert, J. C., H968
Reneman, R. S., H255, H539
Renkin, E. M., H706
Reuben, J. P., H699
Rich, T. L., H247
Riedel, J., H846
Ritz, E., H846
Roberts, A. M., H149
Rockhold, R. W., H443
Rodgers, R. L., H600, H861
Roeske, W. R., H630
Romaschin, A. D., H213
Romero, J. C., H1145
Rosenberg, R. D., H879
Rosenthal, S., H208
Ross, G., H524
Ross, J., Jr., H464
Rouslin, W., H503
Rozanski, G. J., H397
Rubanyi, G. M., H815, H822, H1145

Sagawa, K., H414
Saito, A., H693
Saito, M., H151
Samuel, J.-L., H333
Sandrock, A. W., H755
Santamore, W. P., H131
Sarelius, I. H., H899
Sato, T., H509
Satoh, S., H672
Schine, L., H595
Schneider, R. M., H778
Schrader, J., H173
Schuessler, R. B., H630
Schultz, H. D., H149
Schwartz, K., H333
Schweickhardt, C., H853
Shelat, H., H313
Shepherd, J. T., H519
Shine, K. I., H982
Shoukas, A. A., H96
Sievers, R., H22
Singal, P. K., H419
Sirén, A.-L., H1093
Sitar, D. S., H992
Skorton, D. J., H1022
Sladek, C. D., H443
Smith, L. R., H43
Smith, W. M., H530, H736
Sobata, E., H389
Solaro, R. J., H503
Sonnenblick, E. H., H108, H620
Sosa, R. E., H871
Spahr, R., H853
Sparks, H. V., H482
Sparks, H. V., Jr., H974
Stekiel, W. J., H761
Stevens, M. B., H276, H558
Stevenson-Smith, W., H131
Strauss, J. F., III, H366
Suarez-Kurtz, G., H699
Suga, H., H151, H167, H685
Sutko, J. L., H654, H786
Suzuki, H., H672
Sweet, W. D., H189
Swynghedauw, B., H923
Syrovy, I., H333

Tajimi, T., H464
Takayanagi, K., H567
Takeshita, A., H226
Takiguchi, M., H389
Takishima, T., H672
Tamai, J., H509
Tandler, B., H741
Terjung, R. L., H1050
Thompson, L. J., H786
Toda, N., H718
Tomanek, R., H407
Traystman, R. J., H7, H954
Tsubakisaka, H., H389
Tuma, R. F., H137

Uboh, C. E., H1
Urthaler, F., H43

Vandekieft, G. K., H407
Van den Horn, G. J., H961
Vandermolen, D. T., H490
Van Der Vusse, G. J., H255
Van de Voorde, J., H711
Vanhoutte, P. M., H519, H815, H822, H1145
Vargas, F. F., H16
Vari, R. C., H189
Vasthare, U. S., H137
Vatner, S. F., H76, H546, H892
Veenstra, R. D., H453
Volpe, M., H871

Wachtfogel, Y. T., H366
Walker, P. M., H213
Warltier, D. C., H372
Warnock, D. F., H181
Watkinson, W. P., H320
Webb, R. C., H612
Weintraub, W. S., H778
Weiss, J., H982
West, G. A., H769
Westerhof, N., H330, H961
Whalen, R. G., H333
Whalen, W. J., H202
White, C. W., H114, H1022
Wiedeman, M. P., H137
Wikman-Coffelt, J., H22
Wilkin, J. K., H765
Willerson, J. T., H490
Wilson, D. A., H7
Wilson, G. J., H213
Winn, H. R., H304
Wisnewsky, C., H333
Wolf, P., H736
Woodman, O. L., H76
Wooldridge, C. B., H749
Worley, S. J., H530
Wylds, A. C., H630
Wyss, J. M., H82

Yamada, O., H151, H167
Yellin, E. L., H620
Yoran, C., H620
Young, M. A., H892

Zierler, K. L., H539
Zimmerman, B. G., H1043
Zola, B., H108
Zucker, I. H., H159

American Journal of Physiology: Heart and Circulatory Physiology

VOLUME 19, January–June 1986

Editor: E. PAGE

Associate Editors:
N. R. ALPERT
B. R. DULING
E. O. FEIGL
H. A. FOZZARD
W. R. GIBBONS
J. R. NEELY
R. C. WEBB

Editorial Board:
E. BASSENGE
J. B. BASSINGTHWAIGHTE
C. M. BAUMGARTEN
K. H. BERECEK
V. S. BISHOP
D. F. BOHR
F. I. M. BONKE
M. J. BRODY
A. M. BROWN
G. M. CHISOLM
P. B. CORR
J. G. DOBSON, JR.
A. FABIATO
L. E. FORD
D. FRANKLIN
R. H. FREEMAN
K. P. GALLAGHER
R. D. GOLDFARB
J. C. GREENFIELD, JR.
F. J. HADDY
A. HJALMARSON
J. I. E. HOFFMAN
J. S. INGWALL
W. E. JACOBUS
H. A. KONTOS
H. KURIYAMA
K. F. LaNOUE
M. N. LEVY
A. B. MALIK
J. B. McMILLIN-WOOD
I. MIRSKY
E. N. MOORE
E. MORKIN
A. S. NIES
R. A. OLSSON
S. OPARIL
G. K. OWENS
A. J. PAPPANO
P. I. POLIMENI
E. M. RENKIN
C. F. ROTHE
M. J. ROVETTO
K. SAGAWA
W. SCHAPER
L. A. SORDAHL
H. V. SPARKS, JR.
N. SPERELAKIS
N. C. STAUB
M. D. THAMES
P. M. VANHOUTTE
S. F. VATNER
J. L. WALKER, JR.
A. M. WATANABE
W. B. WEGLICKI
J. R. WILLIAMSON
R. ZAK

Publications Committee

P. C. JOHNSON, *Chairman*
W. F. GANONG
L. R. JOHNSON
F. G. KNOX
J. McE. MARSHALL

S. R. GEIGER
Publications Manager and Executive Editor

B. B. RAUNER
Production Manager

K. CASTEEL
K. CANNON
Copy Editors

Published monthly by
THE AMERICAN PHYSIOLOGICAL SOCIETY
9650 Rockville Pike, Bethesda, MD 20814

Copyright © 1986 by the American Physiological Society. Printed in the United States of America by Waverly Press, Inc., Baltimore, MD 21202. The code at the bottom of the first page of an article indicates the copyright owner's consent that copies of an article may be made beyond that permitted by sections 107 and 108 of the U.S. Copyright Law—unless the copies are for general distribution, for advertising, for creating new works, or for resale—provided the per-copy fee is paid through the Copyright Clearance Center, Inc., 27 Congress St., Salem, MA 01970.

Guest Referee Editors

The Publications Committee of the American Physiological Society gratefully acknowledges the services of the following guest referee editors who assisted the Editorial Board in the reviews of manuscripts.

F. L. Abel
N. Alexander
J. Allen
B. Altura
M. C. Andresen
M. Anliker
M. Antonaccio
C. Antzelevitch
C. Apstein
R. Aronson
E. O. Attinger
K. F. Austen
R. J. Bache
P. G. Baer
J. C. Bailey
L. E. Baker
S. Baker
N. Banchero
R. O. Banks
A. C. Barger
K. L. Barnes
W. H. Barry
S. L. Bealer
B. P. Bean
L. Becker
T. Bedford
W. H. Beierwaltes
D. R. Bell
R. F. Bellamy
F. L. Belloni
P. Bennett
T. D. Bennett
J. A. Bevan
R. Beyar
J. Bhattacharya
O. H. Bing
S. P. Bishop
C. M. Bloor
H. G. Bohlen
R. F. Bond
A. A. Bove
A. J. Brady
G. P. Brierley
K. L. Brigham
B. Bromberger-Barnea
D. Brooks
K. B. Brosnihan
M. R. Brown
C. A. Bruner
M. J. Brunner
H. J. Bryant
J. P. Buckley
N. M. Buckley
C. W. Buffington
R. Buñag
P. Bunger
R. Bünger
A. H. Burns
D. W. Busija
S. M. Cain
K. B. Campbell
K. P. Campbell
W. B. Campbell
P. J. Cannon
R. M. Carey
R. B. Case
S. S. Cassidy
K. Catt
C. Cauvin
B. Chance
N. Chand
B. M. Chapnick
K. R. Chien
W. M. Chilian
J. E. Chimoskey
P. C. Churchill
J. Clapp
J. D. Coffman
C. J. Cohen
D. Cohen
I. S. Cohen
R. Cohen
T. Colatsky
G. Cooper, IV
L. V. N. Cothran
R. L. Coulson
J. W. Covell
A. W. Cowley, Jr.
R. H. Cox
P. Coyle
C. Crone
H. Cserr
A. Cutilleta
B. H. Culver
F.-R. E. Curry
L. D'Alecy
D. H. Damon
E. E. Daniel
S. Daniel
D. L. Davis
M. J. Davis
A. J. DeBold
R. L. DeHaan
V. DeQuattro
J. N. Diana
D. E. Dobbins
P. B. Dobrin
W. P. Dole
K. Dormer
H. F. Downey
J. A. Downey
J. M. Downey
S. E. Downing
W. N. Duran
D. L. Eckberg
N. H. Edelman
D. I. Edelstone
T. S. Edgington
V. Elharrar
G. Elzinga
M. L. Entman
D. Euler
J. J. Faber
A. I. Faden
B. Fagrell
S. Feinstein
J. D. Fenstermacher
J. P. Filkins
G. D. Fink
S. F. Flaim
W. W. Fleming
M. R. Flick
J. D. Folts
H. V. Forster
M. J. Fregley
A. M. Fujii
R. F. Furchgott
P. Furspan
W. H. Gaasch
D. C. Gadsby
M. H. Gee
M. Gerová
W. R. Giles
R. A. Gillis
J. P. Gilmore
R. F. Gilmour
S. Glagov
S. A. Glantz
H. G. Glitsch
K. Goetz
L. Goldstein
E. Gomez-Sanchez
T. L. Goodfriend
R. Gorczynski
F. Gordon
F. J. Gordon
R. W. Gore
C. A. Goresky
M. W. Gorman
S. E. Graber
H. J. Granger
A. S. Green
J. E. Greenleaf
R. Grekin
D. M. Griggs, Jr.
G. J. Gross
J. F. Gross
W. Grossman
K. A. Gruber
A. C. Guyton
J. E. Hall
W. Halpern
P. V. Halushka
D. R. Harder
A. R. Hargens
I. E. Hassinen
E. W. Hawthorne
D. Healy
D. J. Hearse
H. B. Hechtman
C. Heesch
L. L. Hefner
D. D. Heistad
J. T. Herlihy
R. K. Hermsmeyer
R. F. Highsmith
L. B. Hinshaw
H. Hirche
B. B. Hoffman
P. M. Hogan
N. K. Hollenberg
C. Homcy
C. R. Honig
W. B. Hood
W. Hornbeck
S. R. Houser
A. H. Huang
W. C. Hunter
V. H. Huxley
C. D. Ianuzo
M. Intaglietta
B. R. Ito
W. F. Jackson
J. Jalife
J. S. Janicki
M. J. Janse
W. J. Janssens
C. January
R. F. Janz
S. Jard
J. M. Jarmakani
R. B. Jennings
J. O. R. Jensen
A. K. Johnson
A. W. Jones
C. E. Jones
D. P. Jones
S. Julius
G. Kaley
J. E. Kaplan
M. B. Kardon
T. G. Karrison
R. S. Kass
R. E. Katholi
A. M. Katz
M. A. Katz
B. G. Katzung
M. Kaufman
J. Kelley
J. L. Kenyon
M. Kessler
P. Kezdi
P. A. Khairallah
G. Kinasewitz
G. A. Klassen
R. L. Kline
F. J. Klocke
R. A. Kloner
I. J. Kopin
E. M. Krieger
J. W. Krueger
D. L. Kunze
W. Kuschinsky
E. G. Lakatta
M. M. Laks
F. Lamb
J. M. J. Lamers
E. G. Lapetina

M. H. Laughlin
W. J. Lederer
A. M. Lefer
C. W. Leffler
R. J. Lefkowitz
M. Legato
N. J. Leonard
H. J. Levine
M. M. LeWinter
R. Lewis
S. F. Lewis
C.-S. Liang
J.-F. Liard
T. M. Lincoln
L. Lindbom
S. L. Lipsius
G. Lister
W. C. Little
W. E. Lockette
J. M. Loeb
D. J. Loegering
T. E. Lohmeier
J. H. Lombard
J. C. Longhurst
J. C. Longhurst
D. E. Longnecker
A. J. Lonigro
W. M. Lovenberg
B. K. Lucchesi
B. R. Lucchesi
C. L. MacAnespie
A. MacPhee
K. U. Malik
A. Malliani
R. L. Malvin
M. L. Mangiapane
J. W. Manning
M. L. Marcus
A. Mark
A. L. Mark
D. J. Marsh
J. D. Marsh
B. E. Marshall
J. M. Marshall
P. J. Martin
R. E. Mates
W. L. Maughan
W. Mayhan
T. A. McCalden
D. McCall
P. F. McDonagh
T. F. McDonald
J. E. McKenzie
T. A. McMahon
L. M. McManus
I. F. McMurtry
J. E. McNamee
J. H. McNeill
R. M. Mentzer
G. Meschia
E. J. Messina
D. D. Metcalfe
C. C. Michel
R. W. Millard
R. J. Miller
T. B. Miller, Jr.
W. P. Milnor
M. Miniati
J. H. Mitchell
W. Mitzner
W. Mohl
D. E. Mohrman
H. Moises
D. Moisey
M. Morris
R. Moss
E. E. Muirhead
L. A. Mulieri
R. A. Murphy
P. A. Murray
J. H. Myers
C. Napolitano
A. Nasjletti
M. A. Nathan
R. D. Nathan
D. O. Nelson
R. M. Nerem
A. Neumann
W. Nichols
P. Niederer
T. O. Nield
A. Noordergraaf
R. A. Norman
R. L. Nunnally
G. Osol
E. Pagani
R. V. Panganamala
A. D. Pasipoularides
R. J. Paul
M. J. Peach
Z. J. Penefsky
B. Penney
S. Permutt
J. Pfeffer
M. A. Pfeffer
R. D. Phair
M. I. Phillips
R. N. Pittman
D. W. Ploth
G. H. Pollack
J. B. Price
A. R. Pries
D. U. Priola
D. V. Priola
K. G. Proctor
S. H. Rahimtoola
D. C. Randall
W. C. Randall
J. T. Reeves
D. Reibel
I. A. Reid
J. V. O. Reid
K. A. Reimer
D. J. Reis
D. G. Reynolds
E. L. Ritman
R. J. Rivers
M. Roach
G. A. Robison
A. P. Rocchini
J. C. Romero
J. Rose
M. R. Rosen
P. Rosen
I. H. Rosenberg
W. I. Rosenblum
R. Rubio
J. W. Ryan
T. M. Saba
H. Sandler
M. Sanguinetti
I. H. Sarelius
T. P. Schaible
J. Schaper
C. R. Scheid
H. R. Schelbert
A. M. Scher
J. Scheuer
P. G. Schmid
G. W. Schmid-Schoenbein
E. E. Schneeberger
J. Schrader
P. T. Schumacker
A. Schwartz
K. Schwartz
A. G. Scicli
B. Scoggins
O. U. Scremin
S. S. Segal
J. W. Severinghaus
R. E. Shade
J. T. Shepherd
S.-S. Sheu
A. A. Shoukas
S. G. Shroff
B. Siesjo
M. Simson
H. A. Singer
J. B. Smith
T. W. Smith
R. J. Solaro
E. Soltis
J. R. Somer
A. Somlyo
E. Songu-Mize
E. H. Sonnenblick
R. R. Sonneschein
J. A. E. Spaan
J. F. Spear
W. S. Spielman
D. C. Spray
W. N. Stainsby
S. A. Stalcup
R. Stark
R. B. Stephenson
H. C. Strauss
H. Suga
J. T. Sylvester
J. Szilagyi
H. Taegtmeyer
G. J. Tangelder
A. E. Taylor
G. H. Templeton
O. G. Thilenius
J. X. Thomas
L. P. Thompson
K. L. Thornburg
H. Tillmanns
F. G. Toback
L. Tobian
R. J. Tomanek
R. J. Traystman
N. C. Trippodo
R. F. Tuma
J. V. Tyberg
T. Unger
R. N. Vaishnav
C. VanBreeman
M. Vassalle
F. Vetterlein
D. Villarreal
R. R. Vollmer
J. T. Walsh
H.-H. Wang
D. C. Warltier
D. Warshaw
A. Wasserstrom
J. A. Wasserstrom
P. Watson
L. C. Weaver
K. T. Weber
M. L. Weisfeldt
H. R. Weiss
A. H. Werber
T. C. West
D. P. Westfall
T. Westfall
R. G. Whalen
T. White
W. V. Whitehorn
C. F. Whitfield
A. Wiegner
G. H. Williams
B. Winkler
R. J. Winquist
A. L. Wit
C. Wood
A. C. Yao
F. C.-P. Yin
H. Zimmer
B. Zimmerman
I. H. Zucker
B. W. Zweifach

American Journal of Physiology: Heart and Circulatory Physiology

No. 1. JANUARY 1986

Altered phospholipid metabolism in pressure-overload hypertrophied hearts
D. K. Reibel, B. O'Rourke, K. A. Foster, H. Hutchinson, C. E. Uboh, and R. L. Kent H1

Effect of hypoxia and hypercapnia on neurohypophyseal blood flow
D. F. Hanley, D. A. Wilson, and R. J. Traystman H7

Electrical conductivity and its use in estimating an equivalent pore size for arterial endothelium
M. P. O'Donnell and F. F. Vargas H16

Verapamil preserves adenine nucleotide pool in cardiomyopathic Syrian hamster
J. Wikman-Coffelt, R. Sievers, W. W. Parmley, and G. Jasmin H22

Multiple tracer dilution estimates of D- and 2-deoxy-D-glucose uptake by the heart
J. Kuikka, M. Levin, and J. B. Bassingthwaighte H29

Differential sympathetic-parasympathetic interactions in sinus node and AV junction
F. Urthaler, B. H. Neely, G. R. Hageman, and L. R. Smith H43

Neurohumoral contributions to chronic angiotensin-induced hypertension
C. A. Bruner and G. D. Fink H52

Conditions for dipyridamole potentiation of skeletal muscle active hyperemia
R. E. Klabunde H62

Fluid and protein shifts after postural changes in humans
H. Hinghofer-Szalkay and M. Moser H68

Augmented catecholamine uptake by the heart during hemorrhage in the conscious dog
O. L. Woodman, J. Amano, T. H. Hintze, and S. F. Vatner H76

Sensory denervation of the kidney attenuates renovascular hypertension in the rat
J. M. Wyss, N. Aboukarsh, and S. Oparil H82

Stretch-dependent (myogenic) tone in rabbit ear resistance arteries
J. J. Hwa and J. A. Bevan H87

Interaction of right and left carotid sinus baroreflexes in the dog
A. S. Greene, M. J. Brunner, and A. A. Shoukas H96

Reversibility of diabetic cardiomyopathy with insulin in rabbits
F. S. Fein, B. Miller-Green, B. Zola, and E. H. Sonnenblick H108

Failure of pyruvate to salvage myocardium after prolonged ischemia
D. D. Gutterman, W. M. Chilian, C. L. Eastham, T. Inou, C. W. White, and M. L. Marcus H114

5-Hydroxytryptamine delays relaxation time of norepinephrine-induced vasoconstriction
S. Manzini, C. A. Maggi, and A. Meli H121

SPECIAL COMMUNICATIONS

Biplane ventriculography in the rat
J. L. Heckman, L. Garvin, T. Brown, W. Stevenson-Smith, W. P. Santamore, and P. R. Lynch H131

Considerations in use of microspheres for flow measurements in anesthetized rat
R. F. Tuma, U. S. Vasthare, G. L. Irion, and M. P. Wiedeman H137

RAPID COMMUNICATIONS

β-Adrenoceptor-mediated release of angiotensin II from mesenteric arteries
M. Nakamaru, E. K. Jackson, and T. Inagami H144

LETTERS TO THE EDITOR

Aortic wall creep and acute baroreceptor resetting
H. M. Coleridge, J. C. G. Coleridge, E. R. Poore, A. M. Roberts, and H. D. Schultz; P. A. Munch and A. M. Brown H149

No. 2. FEBRUARY 1986

Left ventricular regional work from wall tension-area loop in canine heart
Y. Goto, H. Suga, O. Yamada, Y. Igarashi, M. Saito, and K. Hiramori H151

Acute aortic stenosis in the conscious dog: effects of inotropic state on heart rate
I. H. Zucker, M. J. Niebauer, and K. G. Cornish H159

Peak isovolumic pressure-volume relation of puppy left ventricle
H. Suga, O. Yamada, Y. Goto, and Y. Igarashi H167

Supply-to-demand ratio for oxygen determines formation of adenosine by the heart
H. Bardenheuer and J. Schrader H173

Noninvasive measurements of nonlinear arterial elasticity
J. Megerman, J. E. Hasson, D. F. Warnock, G. L. L'Italien, and W. M. Abbott H181

Role of renal nerves in rats with low-sodium, one-kidney hypertension
R. C. Vari, R. H. Freeman, J. O. Davis, and W. D. Sweet H189

Neurogenic antinatriuresis during development of acute cardiac tamponade
J. L. Osborn and M. T. Lawton H195

Cat carotid body oxygen metabolism and chemoreception described by a two-cytochrome model
P. K. Nair, D. G. Buerk, and W. J. Whalen H202

Improvement in relaxation by nifedipine in hypoxic isometric cat papillary muscle
J. E. Carter, I. Palacios, W. H. Frist, S. Rosenthal, J. B. Newell, and W. J. Powell, Jr. H208

Metabolic response of skeletal muscle to ischemia
K. Harris, P. M. Walker, D. A. G. Mickle, R. Harding, R. Gatley, G. J. Wilson, B. Kuzon, N. McKee, and A. D. Romaschin H213

Skeletal muscle vasodilation during electrical stimulation of the preoptic recess
K. G. Proctor and S. L. Bealer H221

Lowering calcium in the nucleus tractus solitarius causes hypotension and bradycardia
S. Higuchi, A. Takeshita, H. Higashi, N. Ito, T. Imaizumi, H. Matsuguchi, and M. Nakamura H226

Fastigial nucleus cardiovascular response and brain stem lesions in the beagle
K. J. Dormer, J. A. Andrezik, R. J. Person, J. T. Braggio, and R. D. Foreman H231

In vitro myocardial performance after lethal and nonlethal doses of endotoxin
K. H. McDonough, B. A. Brumfield, and C. H. Lang H240

Augmentation of sarcolemmal Ca by anionic amphiphile: contractile response of three ventricular tissues
G. A. Langer and T. L. Rich H247

Gradients in fiber shortening and metabolism across ischemic left ventricular wall
F. W. Prinzen, T. Arts, G. J. van der Vusse, W. A. Coumans, and R. S. Reneman H255

Ultrastructure and function of isolated myocytes after calcium depletion and repletion
J. S. Frank, A. J. Brady, S. Farnsworth, and G. Mottino H265

Transmural coronary flow reserve patterns in dogs
M. T. Grattan, F. L. Hanley, M. B. Stevens, and J. I. E. Hoffman H276

Histamine-induced protein leakage in hypertensive rats: inhibition by verapamil
F. N. Miller, I. G. Joshua, J. T. Fleming, and N. Parekh H284

Vascular anatomy and hydrostatic pressure profile in the hamster cheek pouch
M. J. Davis, P. N. Ferrer, and R. W. Gore H291

A venous outflow method for continuously monitoring cerebral blood flow in the rat
S. Morii, A. C. Ngai, K. R. Ko, and H. R. Winn H304

Na^+-H^+ exchange is present in sarcolemmal vesicles from dog superior mesenteric artery
A. M. Kahn, H. Shelat, and J. C. Allen H313

SPECIAL COMMUNICATIONS

Improved technique for monitoring electrocardiograms during exposure to radio-frequency radiation
W. P. Watkinson and C. J. Gordon H320

RAPID COMMUNICATIONS

Two electrophysiologically distinct types of cultured pacemaker cells from rabbit sinoatrial node
R. D. Nathan H325

LETTERS TO THE EDITOR

Comments on "Pressure and tone dependence of coronary diastolic input impedance and capacitance"
N. Westerhof and R. Krams; J. M. Canty, Jr., F. J. Klocke, and R. E. Mates H330

No. 3. MARCH 1986

Differential effect of thyroxine on atrial and ventricular isomyosins in rats
J.-L. Samuel, L. Rappaport, I. Syrovy, C. Wisnewsky, F. Marotte, R. G. Whalen, and K. Schwartz H333

Continuous blood densitometry: fluid shifts after graded hemorrhage in animals
H. Hinghofer-Szalkay H342

Fatty acid metabolism in hearts containing elevated levels of CoA
G. D. Lopaschuk, C. A. Hansen, and J. R. Neely H351

Effects of changing Ca^{2+}-to-H^+ ratio on Ca^{2+} uptake by cardiac sarcoplasmic reticulum
D. O. Levitsky and D. S. Benevolensky H360

Effects of verapamil and diltiazem on human platelet function
V. P. Addonizio, Jr., C. A. Fisher, J. F. Strauss III, Y. T. Wachtfogel, R. W. Colman, and M. E. Josephson H366

Beneficial actions of superoxide dismutase and catalase in stunned myocardium of dogs
G. J. Gross, N. E. Farber, H. F. Hardman, and D. C. Warltier H372

Regional differences of myocyte hypertrophy and three-dimensional deformation of the heart
T. Kuribayashi, K. Furukawa, H. Katsume, H. Ijichi, and Y. Ibata H378

Dural sinus pressure: various aspects in human brain surgery in children and adults
T. Iwabuchi, E. Sobata, K. Ebina, H. Tsubakisaka, and M. Takiguchi H389

Automaticity in atrioventricular valve leaflets of rabbit heart
G. J. Rozanski and J. Jalife H397

Ventricular function and morphology in chick embryo from stages 18 to 29
E. B. Clark, N. Hu, J. L. Dummett, G. K. Vandekieft, C. Olson, and R. Tomanek H407

Influence of pacing site on canine left ventricular force-interval relationship
D. Burkhoff and K. Sagawa H414

Adriamycin stimulates low-affinity Ca^{2+} binding and lipid peroxidation but depresses myocardial function
P. K. Singal and G. N. Pierce H419

Circulatory changes during spontaneous motor activity: role of arterial baroreflexes
J. Ludbrook and S. J. Potocnik H426

Blood flow through vasa vasorum in arteries and veins: effects of luminal Po_2
D. D. Heistad, M. L. Armstrong, and S. Amundsen H434

Vasopressin and renin response to plasma volume loss in spontaneously hypertensive rats
C. D. Sladek, M. L. Blair, Y.-H. Chen, and R. W. Rockhold H443

Electrotonic interactions between aggregates of chick embryo cardiac pacemaker cells
R. D. Veenstra and R. L. DeHaan H453

Preload reserve and mechanisms of afterload mismatch in normal conscious dog
J.-D. Lee, T. Tajimi, J. Patritti, and J. Ross, Jr. H464

Reactive hyperemia following one-beat coronary occlusions in the awake dog
R. J. Bache and D. S. Hess H474

Endothelial cell uptake of adenosine in canine skeletal muscle
M. W. Gorman, J. B. Bassingthwaighte, R. A. Olsson, and H. V. Sparks H482

Differences in affinity of cardiac β-adrenergic receptors for [^{3}H]dihydroalprenolol
K. H. Muntz, T. A. Calianos, D. T. Vandermolen, J. T. Willerson, and L. M. Buja H490

Unilateral and bilateral sympathetic effects on cerebral blood flow during normocapnia
D. W. Busija H498

Effects of oligomycin and acidosis on rates of ATP depletion in ischemic heart muscle
W. Rouslin, J. L. Erickson, and R. J. Solaro H503

Role of adenosine in hyperemic response of coronary blood flow in microembolization
M. Hori, M. Inoue, M. Kitakaze, Y. Koretsune, K. Iwai, J. Tamai, H. Ito, A. Kitabatake, T. Sato, and T. Kamada H509

Effect of vibration on a canine cutaneous artery
L. E. Lindblad, R. R. Lorenz, J. T. Shepherd, and P. M. Vanhoutte H519

Rhythmic coronary arterial contractions: changes with time and membrane potential
K. D. Keef and G. Ross H524

SPECIAL COMMUNICATIONS

Construction of a multipolar electrode system referenced and anchored to endocardium for study of arrhythmias
S. J. Worley, W. M. Smith, and R. E. Ideker H530

ANNOUNCEMENTS H537

No. 4. APRIL 1986

TERMINOLOGY

Terminology for mass transport and exchange
J. B. Bassingthwaighte, F. P. Chinard, C. Crone, C. A. Goresky, N. A. Lassen, R. S. Reneman, and K. L. Zierler H539

Vagally mediated regulation of renal function in conscious primates
S. F. Vatner, W. T. Manders, and D. R. Knight H546

Proteolysis of the platelet surface: dissociation of shape change from aggregation
E. Kornecki, Y. H. Ehrlich, D. H. Hardwick, and R. H. Lenox H550

Role of adenosine in coronary autoregulation
F. L. Hanley, M. T. Grattan, M. B. Stevens, and J. I. E. Hoffman H558

Effects of digitalis intoxication on pacemaker rhythm and synchronization in rabbit sinus node
K. Takayanagi and J. Jalife H567

Adenosine deaminase attenuates canine coronary vasodilation during systemic hypoxia
G. F. Merrill, H. F. Downey, and C. E. Jones H579

Cardiovascular and renal responses to chronic vasopressin infusion
A. J. Brown, T. E. Lohmeier, R. G. Carroll, and E. F. Meydrech H584

Influence of exogenously generated oxidant species on myocardial function
A. S. Blaustein, L. Schine, W. W. Brooks, B. L. Fanburg, and O. H. L. Bing H595

Antihypertensive effect of thyroidectomy in SHR: associated changes in heart performance
R. L. Rodgers and J. H. McNeill H600

End-systolic pressure-diameter relationships during pulsus alternans in intact pig hearts
W. P. Miller, A. J. Liedtke, and S. H. Nellis H606

Contractile responses to ouabain and K^+-free solution in aorta from hypertensive rats
R. S. Moreland, T. C. Major, and R. C. Webb H612

Left ventricular relaxation in the filling and nonfilling intact canine heart
E. L. Yellin, M. Hori, C. Yoran, E. H. Sonnenblick, S. Gabbay, and R. W. M. Frater H620

Effect of canine cardiac nerves on heart rate, rhythm, and pacemaker location
R. B. Schuessler, J. P. Boineau, A. C. Wylds, D. A. Hill, C. B. Miller, and W. R. Roeske H630

Adrenergic vasoconstriction lessens transmural steal during coronary hypoperfusion
H. J. Nathan and E. O. Feigl H645

Postrest inotropy in rabbit ventricle: Na^+-Ca^{2+} exchange determines sarcoplasmic reticulum Ca^{2+} content
J. L. Sutko, D. M. Bers, and J. P. Reeves H654

Aortic caliber changes during development of hypertension in freely moving rats
L. C. Michelini and E. M. Krieger H662

Measurement of instantaneous viscoelastic properties by impedance-frequency curve of the ventricle
Y. Koiwa, R. Hashiguchi, T. Ohyama, S. Isoyama, S. Satoh, H. Suzuki, and T. Takishima H672

Assessment of slope of end-systolic pressure-volume line of in situ dog heart
Y. Igarashi and H. Suga H685

RAPID COMMUNICATIONS

Calcitonin gene-related peptide as potential neurotransmitter in guinea pig right atrium
A. Saito, S. Kimura, and K. Goto H693

Two calcium currents in a smooth muscle cell line
M. E. Friedman, G. Suarez-Kurtz, G. J. Kaczorowski, G. M. Katz, and J. P. Reuben H699

No. 5. MAY 1986

WIGGERS LECTURE

Introduction
B. R. Duling H705

Some consequences of capillary permeability to macromolecules: Starling's hypothesis reconsidered
E. M. Renkin H706

Endothelium-dependent and independent relaxation of aortic rings from hypertensive rats
J. Van de Voorde and I. Leusen H711

α-Adrenoceptor subtypes and diltiazem actions in isolated human coronary arteries
N. Toda H718

Dobutamine-induced cardiac adaptations: comparison with exercise-trained and sedentary rats
W. R. Davidson, Jr., S. P. Banerjee, and C.-S. Liang H725

Electrophysiological properties of cultured adult rat ventricular cardiac muscle cells
C. F. Meier, Jr., G. M. Briggs, and W. C. Claycomb H731

Determination of effects of internal countershock by direct cardiac recordings during normal rhythm
P. G. Colavita, P. Wolf, W. M. Smith, F. R. Bartram, M. Hardage, and R. E. Ideker H736

Heterogeneous response of subsarcolemmal heart mitochondria to calcium
J. W. Palmer, B. Tandler, and C. L. Hoppel H741

Naloxone enhances myocardial responses to isoproterenol in dog isolated heart-lung
J. L. Caffrey, C. B. Wooldridge, and J. F. Gaugl H749

Vasoactive intestinal peptide: vasodilatation and cyclic AMP generation
P. Ganz, A. W. Sandrock, S. C. Landis, J. Leopold, M. A. Gimbrone, Jr., and R. W. Alexander H755

Enhanced response of arterioles to oxygen during development of hypertension in SHR
J. H. Lombard, M. E. Hess, and W. J. Stekiel H761

Periodic cutaneous blood flow during postocclusive reactive hyperemia
J. K. Wilkin H765

Antagonism of forskolin effects by adenosine in isolated hearts and ventricular myocytes
G. A. West, G. Isenberg, and L. Belardinelli H769

Analysis of phases of contraction during graded acute myocardial ischemia
M. Akaishi, R. M. Schneider, R. J. Mercier, J. B. Agarwal, R. H. Helfant, and W. S. Weintraub H778

Comparison of effects of ryanodine and caffeine on rat ventricular myocardium
J. L. Sutko, L. J. Thompson, A. A. Kort, and E. G. Lakatta H786

Effect of endorphins on heart rate and blood pressure in adult dogs
G. G. Haddad, H. J. Jeng, and T. L. Lai H796

Effect of hypoxia and hypercapnia on ACE activity in the cerebral microcirculation of anesthetized dogs
B. R. Pitt, G. Lister, C. A. Dawson, and J. H. Linehan H806

Oxygen-derived free radicals, endothelium, and responsiveness of vascular smooth muscle
G. M. Rubanyi and P. M. Vanhoutte H815

Superoxide anions and hyperoxia inactivate endothelium-derived relaxing factor
G. M. Rubanyi and P. M. Vanhoutte H822

Diameter and blood flow of skeletal muscle venules during local flow regulation
S. D. House and P. C. Johnson H828

Microvascular pressure in venules of skeletal muscle during arterial pressure reduction
S. D. House and P. C. Johnson H838

Reduced chronotropic responsiveness of the heart in experimental uremia
J. F. E. Mann, K. H. Jakobs, J. Riedel, and E. Ritz H846

Carbohydrate and fatty acid metabolism of cultured adult cardiac myocytes
I. Probst, R. Spahr, C. Schweickhardt, D. H. Hunneman, and H. M. Piper H853

Thyroidectomy of SHR: effects on ventricular relaxation and on SR calcium uptake activity
R. L. Rodgers, S. Black, S. Katz, and J. H. McNeill H861

Acute resetting of baroreceptor reflex in rabbits: a central component
D. L. Kunze H866

Differing hemodynamic responses to atrial natriuretic factor in two models of hypertension
M. Volpe, R. E. Sosa, F. B. Müller, M. J. F. Camargo, N. Glorioso, J. H. Laragh, T. Maack, and S. A. Atlas H871

Anticoagulantly active heparin-like molecules from mast cell-deficient mice
J. A. Marcum, J. B. McKenney, S. J. Galli, R. W. Jackman, and R. D. Rosenberg H879

RAPID COMMUNICATIONS

Denervation increases myogenic tone in a resistance artery in the growing rabbit ear
E. I. Mangiarua, E. H. Joyce, and R. D. Bevan H889

Enhanced adrenergic constriction of iliac artery with removal of endothelium in conscious dogs
M. A. Young and S. F. Vatner H892

No. 6. JUNE 1986

Cell flow path influences transit time through striated muscle capillaries
I. H. Sarelius H899

Microvascular hemodynamics during systemic hemodilution and hemoconcentration
H. H. Lipowsky and J. C. Firrell H908

Prolonged responsiveness to ouabain in hypertrophied rat heart: physiological and biochemical evidence
L. G. Lelievre, J. M. Maixent, P. Lorente, C. Mouas, D. Charlemagne, and B. Swynghedauw H923

Cardiac myocyte stiffness following extraction with detergent and high salt solutions
A. J. Brady and S. P. Farnsworth H932

Interactions among reflex compensatory systems for posthemorrhage hypotension
H. Hosomi, S. Katsuda, H. Morita, Y. Nishida, and S. Koyama H944

Adrenal medullary and cortical blood flow during hemorrhage
M. J. Breslow, A. Mennen, R. C. Koehler, and R. J. Traystman H954

Feline left ventricle does not always operate at optimum power output
G. J. Van den Horn, N. Westerhof, and G. Elzinga H961

Myocardial flow during tachycardia in dogs with chronic left ventricular hypertrophy
J. C. Rembert and J. C. Greenfield, Jr. H968

Methylene blue and ETYA block flow-dependent dilation in canine femoral artery
L. Kaiser, S. S. Hull, Jr., and H. V. Sparks, Jr. H974

Effects of heart rate on extracellular [K^+] accumulation during myocardial ischemia
J. Weiss and K. I. Shine H982

Effects of circulating catecholamines on hepatic blood volume in anesthetized cats
C. V. Greenway, R. Dettman, F. Burczynski, and D. S. Sitar H992

Factors regulating basal metabolism of the isolated perfused rabbit heart
C. L. Gibbs and G. Kotsanas H998

Relationship between inotropy and relaxation in rat myocardium
D. Chemla, Y. Lecarpentier, J. L. Martin, M. Clergue, A. Antonetti, and P. Y. Hatt H1008

Endothelial extraction of tracer water is independent of temperature in dog lungs
F. P. Chinard and W. O. Cua H1017

Alterations in ventricular excitability in conscious dogs during development of chronic heart failure
C. W. White, M. J. Mirro, D. D. Lund, D. J. Skorton, N. G. Pandian, and R. E. Kerber H1022

Adenosine's role in regulating basal coronary arteriolar tone
H. Gewirtz, R. A. Olsson, D. L. Brautigan, P. R. Brown, and A. S. Most H1030

Fetal O_2 consumption in sheep during controlled long-term reductions in umbilical blood flow
D. F. Anderson, C. M. Parks, and J. J. Faber H1037

Vascular reactivity of contralateral kidney in awake Goldblatt hypertensive dog
B. G. Zimmerman H1043

Influence of training following bilateral stenosis of the femoral artery in rats
G. M. Mathien and R. L. Terjung H1050

Myocardial extraction and retention of 2-iododesmethylimipramine: a novel flow marker
S. E. Little, J. M. Link, K. A. Krohn, and J. B. Bassingthwaighte H1060

α_1- And α_2-adrenoceptor stimulation: changes in venous capacitance in intact dogs
C. P. Appleton, R. W. Lee, G. V. Martin, M. Olajos, and S. Goldman H1071

Effect of fatty acid on performance and lipid content of hearts from diabetic rabbits
L. E. Fields, A. Daugherty, and S. R. Bergmann H1079

Platelet activating factor alters calcium homeostasis in cultured vascular endothelial cells
T. A. Brock and M. A. Gimbrone, Jr. H1086

Thyrotropin releasing hormone in hypovolemia: a hemodynamic evaluation in the rat
A.-L. Sirén, E. Powell, and G. Feuerstein H1093

Prostaglandins do not mediate arteriolar oxygen reactivity
W. F. Jackson H1102

Enhancement of α- and β-adrenoceptor responses by elevations in vascular tone in pulmonary circulation
A. L. Hyman and P. J. Kadowitz H1109

α_1-Adrenergic constriction limits coronary flow and cardiac function in running dogs
P. A. Gwirtz, S. P. Overn, H. J. Mass, and C. E. Jones H1117

Adenosine regulates blood flow and glucose uptake in adipose tissue of dogs
S. E. Martin and E. L. Bockman H1127

Right atrial volume during hemorrhage in the dog
D. E. Carlson, K. W. Burchard, and D. S. Gann H1136

RAPID COMMUNICATIONS

Flow-induced release of endothelium-derived relaxing factor
G. M. Rubanyi, J. C. Romero, and P. M. Vanhoutte H1145

Subject Index to Volume 19 H1151
Author Index to Volume 19 H1159